Accuracy classes

Accuracy classes and their tolerances for standard roller rail systems

Up to five accuracy classes apply to standard roller rail systems.
Up to three accuracy classes apply to heavy-duty roller rail systems
For details on the available roller runner block and roller guide rails, please refer to the table with "material numbers".
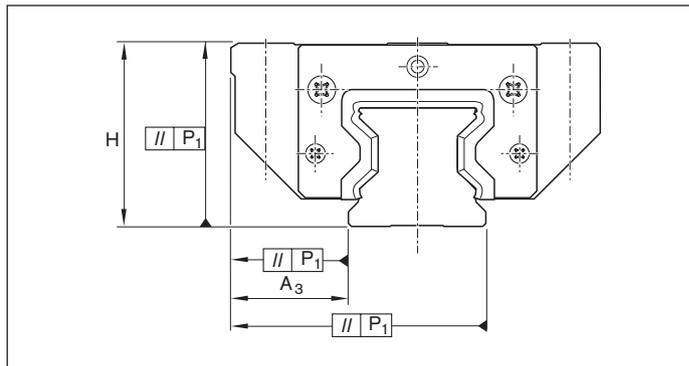
Precision manufacturing process makes interchangeability easy

Rexroth manufactures its roller guide rails and roller runner blocks with such high precision, especially in the roller track zone, that each individual component element is fully interchangeable.

For example, a roller runner block may be used without any problems on various roller guide rails of the same size. Similarly, different roller runner blocks may also be used on one and the same roller guide rail.

	H,	A_3	$\Delta H, \Delta A_3$
Measured in middle of runner block	For any roller runner block/roller guide rail combinations over the total rail length		For different roller runner blocks in the same rail position

Standard and heavy-duty roller rail systems made of steel

Accuracy classes	Tolerances of the dimensions (µm)		Max. differences of dimensions H and A_3 on one rail (µm)
	H	A_3	$\Delta H, \Delta A_3$
H	±40	±20	15
P	±20	±10	7
SP	±10	±7	5
GP[1]	(±10) 10	±7	5
UP	±5	±5	3

1) Dimension H: (±10) sorted by height (GP) to 10 µm (see "Combination of accuracy classes")

Standard and heavy-duty resist CR roller rail systems, hard chrome plated

Accuracy classes	Tolerances of the dimensions (µm)				Max. differences of dimensions H and A_3 on one rail (µm)	
	H		A_3		$\Delta H, \Delta A_3$	
	RW/RS	RS	RW/RS	RS	RW/RS	RS
H	+47 −38	+44 −39	± 23	+19 −24	18	15
P	+27 −18	+24 −19	±13	+9 −14	10	7
SP	+17 8	+14 9	±10	+6 −11	8	5

Parallelism offset P$_1$ of the roller rail system in operation

Values measured in middle of runner block with roller rail systems without surface coating

For hard chrome plated roller guide rails, the values can increase up to 2 µm.
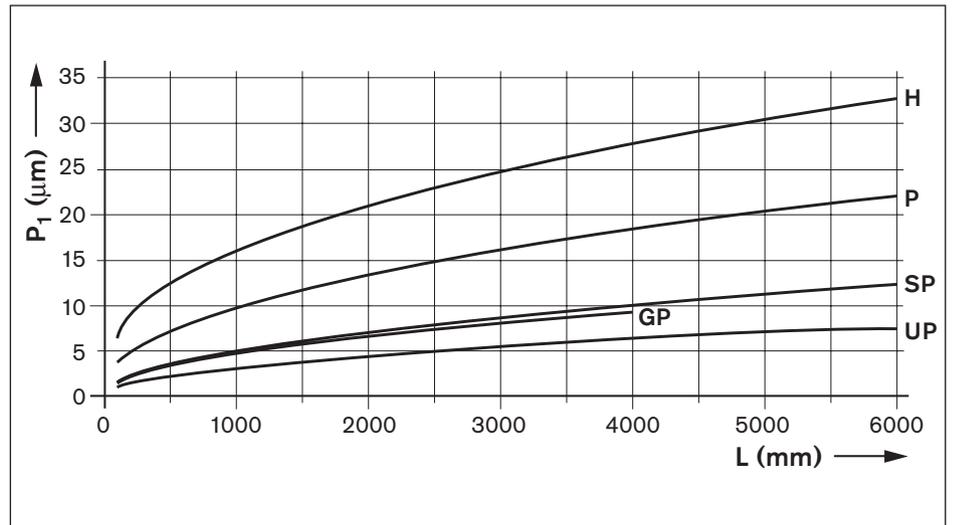
Key to illustration

P$_1$ = Parallelism offset (µm)
L = Rail length (mm)

Combinations of accuracy classes

Tolerances for combination of accuracy classes

Accuracy classes roller runner block	Tolerances of the dimensions (µm)	Accuracy classes for roller guide rails				
		H	P	SP	GP	UP
H	Tolerance of dimension H	±40	±24	±15	±10	±11
	Tolerance of dimension A$_3$	±20	±14	±12	±12	±11
	Max. diff. dimensions H and A$_3$ on one rail	15	15	15	15	15
P	Tolerance of dimension H	±36	±20	±11	±6	±7
	Tolerance of dimension A$_3$	±16	±10	±8	±8	±7
	Max. diff. dimensions H and A$_3$ on one rail	7	7	7	7	7
SP	Tolerance of dimension H	±35	±19	±10	(±10)[1] ±5	±6
	Tolerance of dimension A$_3$	±15	±9	±7	±7	±6
	Max. diff. dimensions H and A$_3$ on one rail	5	5	5	5	5
UP	Tolerance of dimension H	±34	±18	±9	±4	±5
	Tolerance of dimension A$_3$	±14	±8	±6	±6	±5
	Max. diff. dimensions H and A$_3$ on one rail	3	3	3	3	3

1) Dimension H: (±10) sorted by height (GP) to 10 µm (see "Combination: SP roller runner block with GP roller guide rails")